

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

CLAIMS

1. A take-up roller system for winding a continuous web of material having elongated beads of inert adhesive thereon, said system comprising in combination:
 - a support frame,
 - 5 a take-up roller rotatably mounted on said support frame,
 - a web supply system for continuously delivering said web of material to said cylindrical drum, and
 - a diverter system operatively engageable with said web material for reciprocally moving said material laterally of said roller as said material is wound
 - 10 onto said roller whereby beads of adhesive on adjacent layers of material on said roller are offset relative to each other.
2. The apparatus of claim 1 wherein said material has lateral edges and said diverter system includes a traverse comb having fingers for engaging said lateral edges of the material, and a drive mechanism operatively connected to the traverse comb for reciprocally moving the traverse comb laterally of said roller to cause said material to move reciprocally and laterally as it is wound onto said roller.
3. The apparatus of claim 2 wherein said diverter system further includes an eccentric and a traverse rod, said eccentric being operably engageable with said traverse rod to reciprocally move said traverse rod laterally of said roller and wherein said traverse rod is operable to move said traverse comb laterally of said roller.
4. The apparatus of claim 3 wherein said diverter system includes a pair of traverse arms supporting said traverse comb, said traverse rod having a pair of spaced cam collars engageable with said eccentric whereby rotation of said eccentric causes said traverse rod and said traverse comb to move reciprocally and laterally of said drum.
5. The apparatus of any one of claims 1 through 4 wherein said web of material comprises a plurality of side-by-side strips of said material.
6. The apparatus of claim 5 wherein said fingers of said traverse comb are adapted to be positioned between said strips.

7. The apparatus of claim 6 wherein each of said strips has opposite faces and includes side edges with a marginal zone on each face along each side edge, and wherein said beads of adhesive are on said marginal zones.

8. The apparatus of claim 7 wherein a bead of adhesive is only positioned on one marginal zone on each face of said strips and along only one side edge of said strips.

9. The apparatus of claim 1 wherein said web supply system is mounted on a base frame and said support frame is releasably securable to said base frame.

10. An apparatus for forming a multi-component fabric including at least one continuous elongated sheet of material and a plurality of elongated strips of material extending parallel to the length of said sheet material and being connected thereto along one side edge of the strips, comprising in combination:

- 5 a continuous supply roll of material,
- a cutting system for cutting said material from which said strips can be formed into a plurality of elongated parallel strips,
- a take-up roller for rolling said parallel strips of material therearound,
- a movable cart rotatably supporting a take-up roller,
- 10 a strip handling station including a system for receiving a plurality of said carts, said strip handling station including means for handling and substantially maintaining said strips from said plurality of carts in parallel relationship to each other, and
- a laminating station for receiving said parallel strips from said strip
- 15 handling station, said laminating station including a supply roll of said sheet of material, said lamination station adapted to secure said strips to said sheet material such that said strips extend continuously along the length of said sheet material.

11. The apparatus of claim 10 wherein said strip handling station includes means for delivering said strips to said laminating station in longitudinally, partially overlapped relationship with each other.

12. The apparatus of claim 10 or 11 wherein the multi-component fabric includes two sheets of material, said laminating station further including a second supply roll of said sheet material and being adapted to secure said strips of material to said sheets of material between said sheets of material.

13. The apparatus of claim 10 or 11 further including an adhesive applicator for applying continuous beads of adhesive to said material from which the strips are formed before it is rolled around said take-up roller.

14. The apparatus of claim 13 wherein said strips of material have opposite faces and opposite side edges with marginal zones along each side edge and on each face, and there are two beads of adhesive applied to each strip with one bead being in a marginal zone on one face and the other bead being in a marginal zone on the opposite face and along an opposite side edge of the strip from said one bead.

15. A laminating system for laminating at least two layers of continuous fabric material with at least one of said layers of material having a heat activatable adhesive in confronting relationship with the other layers of material, said system comprising in combination,

5 a pair of endless confronting belts between which said materials are disposed, said belts adapted to move said materials along a path of travel,
 a heating system at an upstream location along said path of travel for activating said adhesive, said heating system including a layer of insulation above and below said belts, and heating elements between said layers of insulation and said
10 belts, and
 a cooling system downstream from said heating system, said cooling system including circulating fluid above and below said belts and means for confining said circulating fluid.

16. The laminating system of claim 15 wherein at least one of said heating elements includes resistive heat wires encapsulated in a flexible material.

17. The laminating system of claim 15 wherein at least one of said heating elements is a bar heater.

18. The laminating system of claim 15 wherein one of said heating elements includes resistive heat wires encapsulated in a flexible material and the other of said heating elements is a bar heater.

19. The laminating system of claim 15 further including low friction sheets of material between said belts and said heating elements.

20. The laminating system of claim 15 wherein said means for confining said fluid includes a tank of said fluid in thermal communication with at least one of said belts.

21. The laminating system of claim 15 wherein said means for confining said liquid includes a heat conducting body having passages therethrough through which said fluid passes.

22. The laminating system of claim 15 wherein said means for confining said fluid includes a tank of said fluid above said belts and a heat conducting body below said belt having passages therethrough through which said fluid passes and further including pump means for circulating said fluid through said tank, said body and said heat exchanger.

23. The laminating system of claim 15 wherein at least one of said heating elements includes a tub with a plurality of heat conductive bodies in said tub and heating means for supplying heat to said heat conductive bodies.

24. The laminating system of claim 15 further including a perforated surface across which at least one of said materials passes at the upstream end of said laminating system, a vacuum source below said surface such that said at least one material is attracted to said surface as it passes thereover.

25. The laminating system of claim 24 further including means for feeding the at least one other material onto said at least one material on said surface.

26. The laminating system of claim 25 further including a second means for feeding a third material onto said at least one other material as set first two mentioned materials leave said surface.

27. The laminating system of claim 15 wherein said belts are made of a flexible material and further including drive means for said belts which include a pair of endless non-elastic drive elements extending along opposite sides of said belts, and resilient connectors extending between said drive elements and said belts, said
5 resilient connectors being elongated and forming acute angles with the sides of said belts.

28. The laminating system of claim 27 wherein said resilient connectors are coil springs.

29. The laminating system of claim 28 wherein adjacent connectors form equal but opposite acute angles with the sides of said belts.

30. The laminating system of claim 29 wherein said drive elements are chains.

31. The laminating system of claim 15 further including a take-up roller around which the laminate leaving said cooling system can be wound.

32. The laminating system of claim 15 wherein said heating system is flexible to accommodate varying thicknesses of said material between said belts.

33. The laminating system of claim 15 wherein said cooling system is flexible to accommodate varying thicknesses of said material between said belts.

34. The laminating system of claim 15 wherein said heating and cooling systems are flexible to accommodate varying thicknesses of said material between said belts.